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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,709	02/25/2002	Katsunari Ohsono	219973US3	8295

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EXAMINER

PALABRICA, RICARDO J

ART UNIT

PAPER NUMBER

3641

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/080,709	OHSONO ET AL.
	Examiner	Art Unit
	Rick Palabrica	3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) Responsive to communication(s) filed on 13 September 2002.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) Claim(s) 1-15 is/are pending in the application.  
 4a) Of the above claim(s) 6-12 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-5 and 13-15 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.  
 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.  
 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.  
 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>8</u>	6) <input type="checkbox"/> Other: _____

## DETAILED ACTION

1. Applicant's amendment in Paper No. 9, dated 9/13/02, correcting the specification, amending claims 1-5, and adding new claims 13-15, is acknowledged.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the amendment to claim 1 and in new claim 15, applicant added the following new limitations that are not disclosed in the original specification:

a) "a basket having an outer shape that has an angular cross section with step portions";

b) "a barrel main body which has an inner side forming a cavity, the cavity having a cross section which corresponds with the angular cross section of the basket."

The specification and original claims recite a barrel main body which forms an inner side of a cavity "in a shape aligning with the outer shape of the basket" (e.g., see page 6, lines 14+ and page 8, lines 10+). Thus, the specification discloses a non-specific outer shape of the basket, and not a specific angular cross section with step portions. Also, the specification recites a general configuration of a barrel main body whose inner side forms a cavity that is "aligned" with the outer shape of the basket. The word "aligned" is a broad term that would describe any two surfaces that are disposed near each other such that their horizontal or vertical axes are aligned. Therefore, the more restrictive limitations in said claims represent new subject matter. See also MPEP 2163.5, Part III, and *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

3. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The reason is as set forth in section 3 above.

4. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. The reason is as set forth in section 3 above.

5. Claims 1-5 and 13-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 contains the functional phrase or clause, "wherein a spent fuel assembly is stored in each of the cells of the basket inserted in the cavity," which does not inherently follow from the actual structure recited. Thus, the scope of the claim and/or the metes and bounds thereof cannot be determined. Said clauses accordingly raise a question as to the limiting effect of the language therein on the claim (see MPEP 2106.II.C.).

Regarding claim 15, the phrase "step-like" renders the claim indefinite because the claim includes elements not actually disclosed (those encompassed by "like"), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.05(d).

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by either Efferding (U.S. 4,800,283) or Wells et al. (U.S. 4,827,139).

Efferding discloses a shipping cask for transporting fuel elements, comprising a cylindrical vessel and a basket structure disposed in the interior thereof (see Figs. 1-6).

The basket includes: a) a plurality of plate members capable of absorbing neutrons (15 a-g); b) rectangular plate members having a plurality of cutting sections for mutually engaging the plate members and forming a plurality of cells (see column 4, lines 10+); c) the basket having an outer shape that has an angular cross section with step portions.

There are circular aluminum plates 7a-j that circumscribe the cell assembly 4 and the inner edges of these plates are stepped and complementary to the shape of the outer cross section of the basket (see column 4, lines 38+). These metallic, aluminum plates inherently absorb gamma rays. The plates form a tight structure with the cylindrical vessel 2 that is made from a composite of stainless steel, lead and a neutron-absorbing plastic (see column 4, lines 1+ and column 6, lines 30+).

Applicant's claim language reads on Efferding's cask as follows: a) "barrel main body" reads on the plurality of the circular plates, and b) "neutron shielding body" reads on the cylindrical vessel 2. Note that applicant's claim language of "barrel main body" does not preclude having a plurality of structures (i.e., non-unitary) that together form and function as a units as a main body. Revising the claim language to recite the barrel main body as having a unitary construction would not, by itself, patentably distinguish

the claimed invention over prior art (see MPEP 2144.04.V.B, "Making Portable, Integral, Separable, Adjustable or Continuous").

As to "wherein" clause in claim 1, this is essentially a statement of intended or desired use. Thus is clause, as well as other statements of intended use do not serve to patently distinguish the claimed structure over that of the reference. Note that Singh's apparatus is intended for storing spent fuel assemblies, just like the applicant's. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 152USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2<sup>nd</sup> 1647.

See also MPEP 2114 that states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than function. In re Danly, 263 F.2d 844, 847, 120 USPQ 528, 531.

Apparatus claims cover what a device is, not what a device does." Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525,1528.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wells et al. (U.S. 4,827,139) in view of either one of Efferding or Hennings (DE 2835392 C2). Wells et al. disclose the applicant's claims except for the plate members with cutting section that make up the basket.

Wells et al. disclose a spent nuclear fuel shipping basket and cask (see Figs. 1-5). Fig. 1 shows a cask (11) containing a spent nuclear basket (13), consisting of a number of cells (41) into which nuclear fuel assemblies (not shown) are inserted for transport. The basket has an outer shape that has an angular cross section with step portions.

Fig. 3 shows filler blocks 42 forming a cavity having a cross section which corresponds with the angular cross section of the basket 41. There are also two rings 36 and 34, and the space 38 is filled with lead (see column 4, lines 17+). A neutron shield (37) is arranged in an outer periphery of ring 34.

Applicant's claim language reads on Wells et al. cask as follows: a) "barrel main body" reads on the combination of structures 42, 36, 34 and 38; b) "neutron shielding body" reads on structure 37. Again, note that applicant's claim language of "barrel main body" does not preclude having a plurality of structures (i.e., non-unitary) that together form and function as a unit as a barrel main body, such as the combination of structures in a) above. Revising the claim language to recite the barrel main body as having a unitary construction would not, by itself, patentably distinguish the claimed invention over prior art (see MPEP 2144.04.V.B, "Making Portable, Integral, Separable, Adjustable or Continuous").

Wells et al. does not disclose the claimed configuration for the plates that make-up the basket. Note from the discussion in section 6 above that Efferding discloses the claimed limitation regarding the plates that comprise the applicant's basket. Hennings teaches a storage frame for spent fuel elements consisting of metal plates containing neutron-absorbing material. Fig. 1 in Hennings shows the frame being made from rectangular plates with cutting sections provided on both edges, and said plates are arranged to form a square-shaped cross section. One having ordinary skill in the art would have recognized that either one of Efferding or Henning's plate structure can be used for the basket of Wells et al. because they serve the same function of holding spent nuclear fuel and have the same neutron absorbing properties.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus, as disclosed by Wells et al.,

by the teaching of either one of Efferding or Hennings in order obtain a cask comprising:

1) a basket having a plurality of rectangular plates with cutting sections for mutually engaging a plurality of plates to form a plurality of cells; 2) a barrel main body which shields gamma rays and forms an inner side of a cavity having a cross section that corresponds with the angular cross section of the basket; and 3) a neutron shield arranged in the periphery of the said barrel main body, as this is no more than the use of conventional designs/techniques within the nuclear art, and an alternative way of forming the basket structure.

8. Claims 3-5, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of the Wells-Efferding combination or the Wells-Hennings combination, as applied to claims 1, 2 and 15 above, and further in view of Horning (U.S. 3,036,964) and Mogard (U.S. 4,004,972). Either one of the Wells-Efferding combination or the Wells-Hennings combination disclosed the applicant's claims except for the specifics regarding the dummy pipe.

In addition to the elements of the cask already discussed in section 7 above, the Wells et al. cask also disclose filler blocks (43) of heat absorbing, neutron absorbing material (such as an alloy of aluminum and boron) inserted into the empty spaces between the basket and the wall of the cask (see Abstract, Fig. 3 and column 4, lines 33+). They further disclose that these filler blocks can have different shapes and dimensions, such that when the blocks are assembled in the cask, the basket is held rigidly within the cask (e.g. see claim 1).

Horning teaches the use in a nuclear reactor core of filler members (26) in the form of a hollow aluminum container (e.g. see Figs. 1-3 and column 3, lines 73-75).

Horning teaches further that these filler members can be in the form solid aluminum bars.

Mogard teaches a nuclear fuel element that adds helium gas to the void volume to improve heat transfer in the annular gap (see column 4, lines 60+).

One having ordinary skill in the art would have recognized that a filler material in Wells et al.'s cask can be made of a hollow metal structure, based on the teaching of Horning, and an inert gas such as helium can be introduced into said hollow filler structure to improve its heat transfer characteristics, based on the teaching of Mogard.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the apparatus, as disclosed by either one of Wells-Efferding combination or the Wells-Hennings combination, by the teachings of Horning and Mogard in order obtain a cask further comprising a dummy pipes of boron-aluminum alloy and containing helium gas, said pipes provided along and in contact with the step portions of the basket, to gain the advantages thereof, as this is no more than the use of conventional designs/techniques within the nuclear art, and the substitution of one filler block configuration by another well-known configuration.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Palabrica whose telephone number is 703-306-5756. The examiner can normally be reached on 8:00-4:30, Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. The fax phone numbers

for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

RJP  
September 26, 2002

MICHAEL J. CARONE  
SUPERVISORY PATENT EXAMINER